

**CALIFORNIA ENERGY COMMISSION**  
**Water/Wastewater Facilities**  
**Aeration Projects**

Aeration systems represent a large portion of the total electrical energy use and overall operating cost for most secondary and advanced Wastewater Treatment Plants. Estimates show that, depending on the source of water and the type of treatment, aeration energy use can range anywhere from 49-97% of total energy. Typically, metering accounts for total plant energy use, not individual processes, making it difficult for operators to gauge energy efficiency. Knowledge of aeration energy consumption can save operators thousands of dollars.



Fine bubble diffusers are a practical option for operators seeking to improve aeration and save money. One example of this is Novato Sanitary District's Peak Load project. Novato replaced their jet aeration system with fine bubble diffusers. The project cost was \$200,000 and produced an energy reduction of 200 kilowatts. With current electricity rates, Novato is saving upwards of \$120,000 dollars per year.

Of the four projects in aeration technology, Hopland Public Utilities District incorporated solar aeration. They used a floating solar-powered pond circulation machine called Solar Bee® to aerate three of its ponds. An invention by Ponds Systems Incorporated, the Solar Bee draws water from the lower depths of the pond and spreads the water across the surface. This high rate of water flow greatly accelerates the biological processes occurring within the pond. With solar powered aeration technology, Hopland reduced their energy consumption by 90 kilowatts.

**Grant Program Participants:**

- City of Brawley
- City of Corcoran
- City of Ferndale
- City of Gridley
- City of Rancho Murieta
- Hopland Public Utilities District
- Idyllwild Water District
- June Lake Public Utility District
- Montalvo Municipal Improvement District
- Novato Sanitary District
- Palo Alto Regional Water Quality Control Plant

**Contact Information:**

California Energy Commission:           Shahid Chaudhry  
916.654.4858

Mike Hartley  
916.653.6471

For further information on this and other water/wastewater technology, please visit the Energy Commission Water/Wastewater Process Energy website, located at:

[http://www.energy.ca.gov/process/pubs\\_list.html#water](http://www.energy.ca.gov/process/pubs_list.html#water)